

I CLAIM:

1. A method for simultaneously detecting and capturing a double-stranded DNA sequence, which comprises:

providing a sample;

5 adding a forward primer for the double-stranded DNA sequence and a reverse primer for the double-stranded DNA sequence; one of the forward primer and the reverse primer having a capture agent, the other of the forward primer and the reverse primer having a detection agent;

10 replicating the double-stranded DNA sequence;

binding the capture agent to a capture medium;

rinsing the sample; and

detecting the detection agent.

2. The method according to claim 1, which further comprises

15 selecting the capture agent from the group consisting of sulfhydryl group, biotin, cellulose binding domain, and a specific nucleotide sequence.

3. The method according to claim 1, wherein said capture agent includes a molecular spacer to prevent the capture agent from affecting the attached primer.

4. The method according to claim 1, which further comprises
5 selecting the capture medium from the group consisting of maleamide, avodin, strepavodin, cellulose, and a complementary nucleotide sequence.

5. The method according to claim 1, which further includes selecting a detecting agent from the group consisting of
6 radioactive labels, peptide antigens, and fluorometric dyes.

6. The method according to claim 5, wherein the radioactive label is Iodine-151.

7. The method according to claim 6, which further comprises adding monoclonal antibody specific to the peptide antigen
15 having a detector.

8. The method according to claim 7, which further comprises selecting the detector from the group of radioactive labels, direct fluorescent antibodies, radiolabeled antibodies, and fluorometric dyes.

9. The method according to claim 1, wherein the detecting agent includes a molecular spacer to prevent the capture agent from affecting the attached primer.

10. The method according to claim 1, which further comprises:

5 detecting a plurality of double-stranded DNA sequences by:

adding a forward primer and a reverse primer for each additional double-stranded DNA sequence; one of each pair of a forward primer and a reverse primer having a capture agent, and the other of the pair having a second detection agent, each detection agent being different.

11. The method according to claim 1, which further comprises using a radioactive detection agent and detecting the detection agent with a radiodetector.

12. The method according to claim 1, which further comprises
15 using a fluorescence detection agent and detecting the detection agent with the fluorometer.

13. The method according to claim 1, which further comprises detecting qualitatively the presence of the double-stranded DNA.